

IN THE CLAIMS:

Claims 1-3 (Canceled)

4. (Currently Amended) A method executed in a computer system having at least one ~~using a data processor~~ for determining axial rotation of a pelvis from a single fluoroscopic image without using a patient tracker, comprising

- A. receiving a fluoroscopic image of said pelvis in the near AP direction;
 - B. defining first and second landmarks of said pelvis on said image, said landmarks separated from each other in at least an anterior-posterior direction;
 - C. determining the transaxial displacement of said landmarks on said image;
- and

D. using said displacement to ~~determine~~ calculate with said processor the axial rotation of said pelvis with respect to the plane of said fluoroscopic image.

5. (Original) A method according to claim 4 in which said first landmark comprises the image point of the pubic symphysis.

6. (Original) A method according to claim 5 in which said second landmark comprises the midpoint of a line between the image points of the left and right sacroiliac joints.

7. (Original) A method according to claim 4 in which said displacement is normalized with respect to the separation between a further pair of landmarks.

8. (Original) A method according to claim 7 in which said further pair of landmarks comprises the left and right teardrops.

9. (Currently Amended) A method ~~executed in a computer system having at least one~~ using a processor for determining the transaxial rotation of a pelvis from a single fluoroscopic image without using a patient tracker, comprising

- A. receiving a fluoroscopic image of said pelvis in the near AP direction;
- B. defining first and second landmarks of said pelvis on said image, said landmarks separated from each other in at least an anterior-posterior direction;
- C. determining the axial displacement of said landmarks on said image; and
- D. ~~using said displacement as a measure of~~ to calculate with said data processor the transaxial rotation of said pelvis with respect to the plane of said fluoroscopic image.

10. (Original) A method according to claim 9 in which said first landmark comprises the image point of the pubic symphysis.

11. (Original) A method according to claim 10 in which said second landmark comprises the midpoint of a line between the image points of the left and right sacroiliac joints.

12. (Original) A method according to claim 11 in which said displacement is normalized with respect to the separation between a further pair of landmarks.

13. (Original) A method according to claim 12 in which said further pair of landmarks comprises the left and right teardrops.

14. (Original) A method according to claim 12 in which the transaxial rotation is taken as a function of the relation of said displacement to the corresponding displacements on the fluoroscopic images of a sample of pelvises taken at known orientation to the fluoroscopic image plane.

15-21. (Cancelled)

22. (New) A method for providing, without rising a patient tracker, a patient-specific pelvic coordinate system from a single near AP intra-operative image of the patient, said method comprising:

forming a single intra-operative fluoroscopic image of the patient's pelvis in the near AP direction using an x-ray source;

defining first and second landmarks of said pelvis on said image, said landmarks being separated from each other in at least an anterior-posterior direction;

determining the transaxial displacement of said landmarks on said image;

determining the axial displacement of said landmarks on said image;

calculating by a processor the axial rotation of the pelvis using the transaxial displacement as a measure of the axial rotation of said pelvis with respect to the plane of said image, and

calculating by a processor the transaxial rotation of the pelvis using said axial displacement as a measure of the transaxial rotation of said pelvis with the respect to the plane of said image.

23. (New) The method of claim 22 in which the axial rotation of the pelvis is calculated as a function of the transaxial displacement and the distance between the x-ray source and the image plane.

24. (New) The method according to claim 22 wherein said first landmark comprises the image point of the public symphysis.

25. (New) The method according to claim to claim 22 wherein the second landmark comprises the midpoint of a line between corresponding points on said image of the left and right sacroiliac joints.

26. (New) The method according to claim 22 wherein said displacements are normalized with respect to the separation between a further pair of landmarks on the pelvis.

27. (New) The method according to claim 26 wherein said further pair of landmarks comprises the left and right teardrops.